

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

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PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

023070-150110PC

Date of mailing
(day/month/year)

09 NOV 2003

Applicant's or agent's file reference

23070-1501-1

FOR FURTHER ACTION

See paragraph 2 below

2/9/04

International application No.

PCT/US04/34605

International filing date (day/month/year)

18 October 2004 (18.10.2004)

Priority date (day/month/year)

16 October 2003 (16.10.2003)

International Patent Classification (IPC) or both national classification and IPC

IPC(7): A01N 1/00 and US Cl.: 435/1.1, 1.2, 1.3

Applicant

THE REREAGENTS OF THE UNIVERSITY OF CALIFORNIA

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ US
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Date of completion of this opinion
28 October 2005 (28.10.2005)

Authorized officer

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Form PCT/ISA/237 (cover sheet) (April 2005)

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response to written opinions
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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/US04/34605

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

- ☒ the international application in the language in which it was filed
- ☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

- ☐ a sequence listing
- ☐ table(s) related to the sequence listing

b. format of material

- ☐ on paper
- ☐ in electronic form

c. time of filing/furnishing

- ☐ contained in the international application as filed.
- ☐ filed together with the international application in electronic form.
- ☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

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WRITTEN OPINION OF THE
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International application No.
PCT/US04/34605

Box No. V Reasoned statement under Rule 43 bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims <u>NONE</u>	YES
	Claims <u>1-6</u>	NO
Inventive step (IS)	Claims <u>NONE</u>	YES
	Claims <u>1-6</u>	NO
Industrial applicability (IA)	Claims <u>1-6</u>	YES
	Claims <u>NONE</u>	NO

2. Citations and explanations:

Claims 1-6 lack novelty under PCT Article 33(2) as being anticipated by US 2002/0076445.

US 2002/0114791 discloses a method of loading mesenchymal stem cells with trehalose by incubating them in a solution of trehalose for 24 hours (paragraph 0028). Please note that claim 6 encompasses the use of 0% of DMSO.

Claims 1-6 lack an inventive step under PCT Article 33(3) as being obvious over US 6,127,177.

The claims are directed to a method for loading a disaccharide into mammalian nucleated cells comprising contacting the cells for at least 2 hours with a solution comprising a disaccharide. Dependent claims require the contacting to be for up to 24 hours, where the disaccharide is trehalose and not more than 3% DMSO is also a component of the solution.

US 6,127,177 discloses the addition of a solution trehalose and DMSO (column 5, lines 1-10, column 4, lines 18-45), to cells such as fibroblasts, granulocytes and others (column 2, line 63) by reversibly porating the cells and incubating the porated cell for about 45 minutes in the solution.

The length of time that one wishes to expose the cells to the solution is an element of experimental design. Although the reference states that the transfer is complete in 45 minutes, one of skill in the art may leave the cells for longer if desired. Please note that the claimed method encompasses the use of poration.

Claims 1-6 lack an inventive step under PCT Article 33(3) as being obvious over US 5,827,741.

US 5,827,741 discloses a method of loading eukaryotic cells (abstract) such as islets in particular, with DMSO and trehalose by exposing the cells to the solution for about 50 minutes and then storing the cells in the solution @-196°C (column 7, lines 35-67).

The length of time that one wishes to expose the cells to the solution is an element of experimental design. Although the reference states that the transfer is complete in 45 minutes, one of skill in the art may leave the cells for longer if desired.

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